Nortel Networks Symposium Express Call Center

Voice Services Card Installation Guide

Product release 4.2 | Standard 1.0 | April 2003

NORTEL NETWORKS™

Nortel Networks Symposium Express Call Center

Voice Services Card Installation Guide

Product release:	4.2
Document release:	Standard 1.0
Date:	April 2003

Publication history

April 2003

This is the Standard 1.0 version of the *Nortel Networks Symposium Express Call Center Voice Services Card Installation Guide* for Release 4.2.

Contents

List of figures

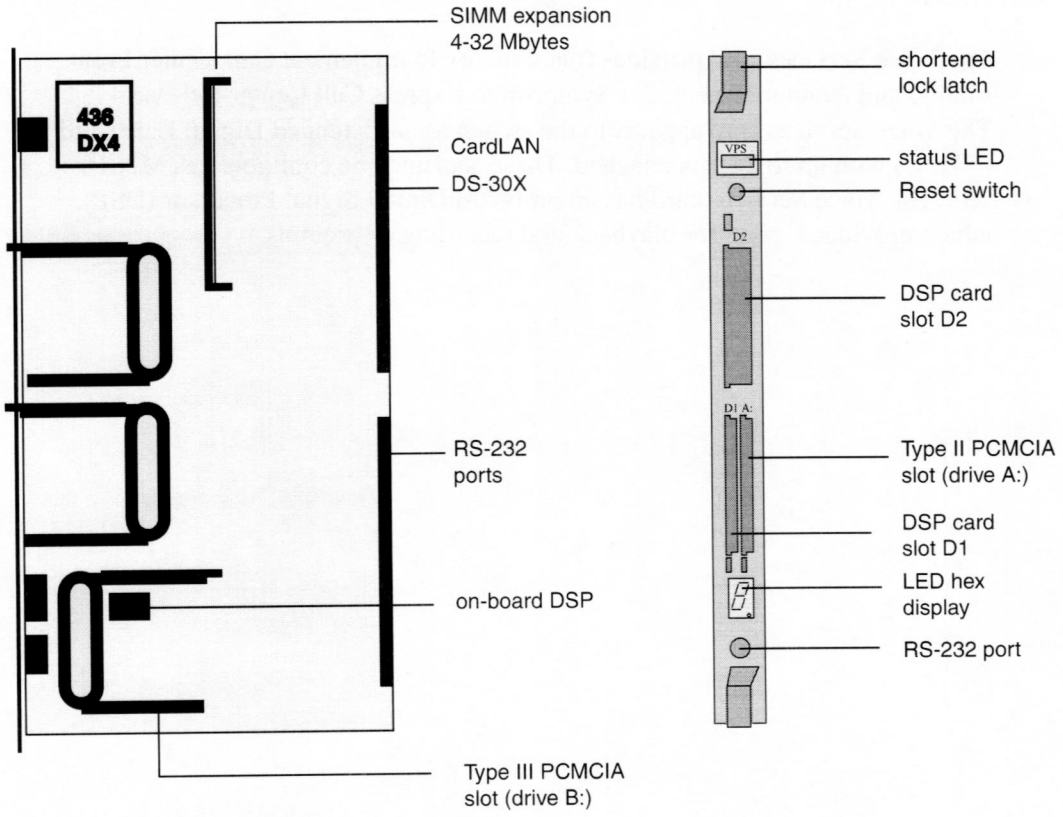
Voice Services card

Introduction

The Voice Services card provides functionality to implement Call Center Front Ending and Announcements for Symposium Express Call Center Release 4.2. The Voice Services card appears to the switch as an Extended Digital Line Card (XDLC) with up to 24 sets attached. These sets must be configured as M2616 sets. The Voice Services card has an on-board Digital Signal Processor (DSP), which provides 8 ports for playback and recording of prompts.

Figure 1 shows the Voice Services card. Refer to Figure 1 when performing any of the procedures outlined in this guide.

Figure 1: Voice Services card



Features

The Voice Services card includes the following features:

- call recording application software preinstalled on the card. You can upgrade the software at any time. For more information about upgrading software, see "To upgrade the loadware" on page 29.
- 8 on-board DSP ports

  You can increase DSP capacity by adding 2 DSP cards, each providing an extra 8 ports, increasing the total number of ports to 24.

- 64 Mbytes of voice prompt storage
- 16 Mbytes of RAM. You can increase the RAM capacity to 32 Mbytes by purchasing an additional memory card.

Compatibility

The following table details the hardware and software compatibility for the Voice Services card:

Voice Services	Compatibility
M1, M1 IE, and Succession CSE 1000 Options	11C, 51C, 61C, 81, and 81C
Card slot location	51C, 61C, 81, or 81C, any IPE slot except CONT. On older systems, slots other than 0, 4, 8, and 12 may require rearrangement of the backplane cabling. See "Cabling the Voice Services card" on page 22. Any IPE slot in an Option 11C.
MDF cabling	None (the sets are virtual)
LAN cabling	Complete cabling requires ■ one NTAG81CA maintenance cable ■ one NT8D81AA I/O panel to backplane cable (older Option 51 to 81C only; see "Cabling the Voice Services card" on page 22) ■ one NTMF94BA Ethernet/serial port cable ■ one Category 5, 10-Base-T Ethernet standard cable
Software Release	Release 24 software and later
Dip Switches settings	None
Time and Date stamp	Automatically sent out by the Meridian 1 CPU
Upgrade capability	Yes, loadware upgrades invoked from maintenance CLI. Upgrade across network via FTP.

Voice Services	Compatibility
Prompt Storage	Recorded prompts are stored on a Type II PCMCIA storage card.
Expandability	Two external NTFG95 DSP cards may be installed, providing 8 additional DSP ports each.

Expansion cards

Required cards

A fully equipped Voice Services card requires one Type II PCMCIA storage card, installed in slot A: or slot B:. A 64 Mbyte PCMCIA card can store up to 5 hours of recorded prompts.

Optional cards

You can expand capacity further with the following additions:

- up to 2 DSP cards
  Each DSP card provides up to 8 additional DSP ports.
- a second Type II PCMCIA storage card

Installation location

You can install the DSP and PCMCIA cards as indicated in the following table (see also Figure 2 on page 16):

Voice Services card slots	Card types
A:	Type II PCMCIA storage card
B:	Type II PCMCIA storage card
D1	NTFG95 DSP card
D2	NTFG95 DSP card

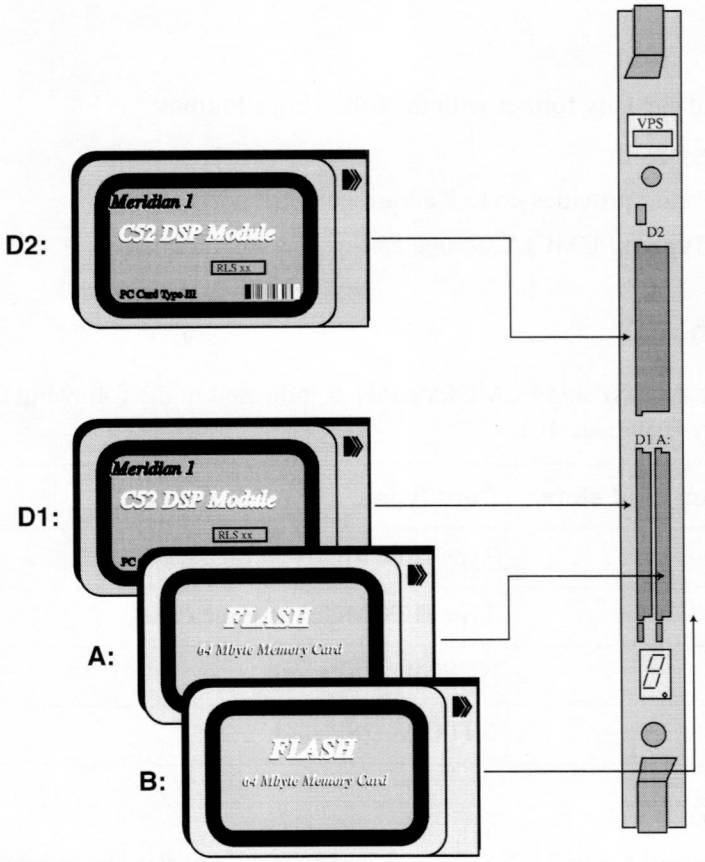
Notes:

- You can install the PCMCIA storage card in slot A: or B:. The internal slot B: is a more secure location for the card since it cannot be easily removed. The external slot A: is more convenient for removing the card easily in case it needs to be changed, and it also makes it easier to back up the drive.

- Installation of expansion cards in the incorrect slots will not damage the installed cards.
- Accidental removal of the PCMCIA storage card will cause Voice Services to fail to play announcements.

For detailed instructions on installing the expansion cards, refer to the appropriate hardware documentation.

Figure 2: DSP and PC Card card slot locations



DSP cards and TN support

If no DSP card is inserted in slot D1, TNs 8 through 15 cannot be used for Voice Services. Similarly, if no DSP card is inserted in slot D2, TNs 16 through 23 cannot be used for Voice Services. The following table provides the configurations supported for units 0–23:

DSP	TNs available
On-board (always available)	0–7
Card # 1 (Faceplate Slot D1:)	8–15
Card # 2 (Faceplate Slot D2:)	16–23

Installation overview

Before you begin

1. Ensure that the Symposium Express Call Center server and client are installed and operational. For more information, refer to Chapter 3, "Server software," in the *Nortel Networks Symposium Express Call Center Planning, Installation, and Administration Guide,* Release 4.2.
2. Ensure that you have already run the Symposium Express Call Center Import wizard. For more information, refer to Chapter 7, "Using the configuration utilities," in the *Nortel Networks Symposium Express Call Center Planning, Installation, and Administration Guide,* Release 4.2.

Installing the Voice Services card in the switch

To install a Voice Services card in the switch, you must complete the following tasks:

1. Install the Voice Services card in the switch. See "Installing the Voice Services card" on page 20.
2. Connect the necessary cables. See "Cabling the Voice Services card" on page 22.
3. Configure a maintenance terminal and assign a network address to the Voice Services card. See "Assigning network information" on page 25.
4. Configure the IVR ACD DNs. See "To configure the IVR ACD DNs and night call forward" on page 31.
5. Configure the Auxiliary Data System (ADS) block. See "To configure the Auxiliary Data System data block" on page 32.
6. Configure Voice Services ports on the switch. See "To configure Voice Services ports" on page 33.
7. Configure the night call forward DN. See "To configure the IVR ACD DNs and night call forward" on page 31.

Post-installation tasks

After you install the Voice Services card on the switch, you must perform the following tasks to configure the card on the server, and to play messages:

1. Add the Voice Services voice ports to Symposium Express Call Center. For more information, see the chapter, "Configuring a Voice Services card," in the *Planning, Installation, and Administration Guide*.

2. Save the Voice Services card configuration information from the switch into a text file, and then run the Voice Services Configuration Utility to import the information into Symposium Express Call Center. For more information, see the chapter, "Configuring a Voice Services card," in the *Planning, Installation, and Administration Guide*.

3. Use the Symposium Express Call Center client to record comfort messages, voice menus, and voice segments, if required. For more information, see the *Call Center Management Guide*.

4. Create call treatments. When you create call treatments, you specify which announcements and voice segments to play, and when to play them.

   For more information about configuring voice segments and creating call treatments, refer to the *Call Center Management Guide*.

Installing the Voice Services card

To install the Voice Services card

1. Determine the cabinet, shelf, and slot location where the Voice Services card is to be installed.
2. Unpack and inspect the circuit card. Handle the circuit card using the guidelines set out in "Precautions for handling circuit cards" on page 39.
3. Install a 64 Mbyte ATA HD card in the slot labeled A: or B: on the Voice Services card. See "Expansion cards" on page 15.
4. Insert a dongle into the socket on the Voice Services card if it is not already present.
5. Insert the Voice Services card into its assigned IPE slot, but do not fully seat the card.
6. If required, install additional DSP cards. See "Expansion cards" on page 15.
7. Connect Voice Services cables. Refer to "Cabling the Voice Services card" on page 22.

   Note: Do not cable the card for Ethernet until after the IP address has been configured. See "Assigning network information" on page 25.
8. Fully insert the Voice Services card in its assigned slot and lock the latches. During powerup, the hex LED display provides a visual progress indication of self tests, and provides information on the first failure detected. Hex display codes are provided in the "NTHF77AA Voice Services test and debug capabilities" section of the *Symposium Express Call Center Voice Services Card Maintenance and Troubleshooting Guide*.

   Note: The red LED on the faceplate of the Voice Services card remains lit until a unit has been configured and matched with a DSP port.

What's next

After the card is installed, you must configure an Internet Protocol (IP) address for the Voice Services card. See "Assigning network information" on page 25.

ATTENTION

See "NTHF77AA Voice Services test and debug capabilities" in the *Symposium Express Call Center Voice Services Card Maintenance and Troubleshooting Guide* for information on maintenance port access, and for upgrade and maintenance information.

Cabling the Voice Services card

Introduction

You require the following cables for cabling the Voice Services card:

- one NTAG81CA maintenance cable
- one NT8D81AA I/O panel to backplane cable (Option 51C to 81C only)
- one NTMF94BA Ethernet/serial port cable (provides Ethernet port and debug/maintenance RS-232 port)
- one Category 5, 10-Base-T Ethernet standard cable

Note: Do not cable the card for Ethernet until after the IP address has been configured. See "Assigning network information" on page 25.

You use the NTAG81CA maintenance cable to connect directly to the Voice Services card's debug/maintenance port on the faceplate. For example, use it for the static configuration of an IP address on the Voice Services card. See "Assigning network information" on page 25.

CAUTION

Risk of system failure

Do not connect terminal equipment to both the backplane serial connector on NTMF94BA and the faceplate serial connector on NTAG81CA. These are physical cabling options for the same serial port.

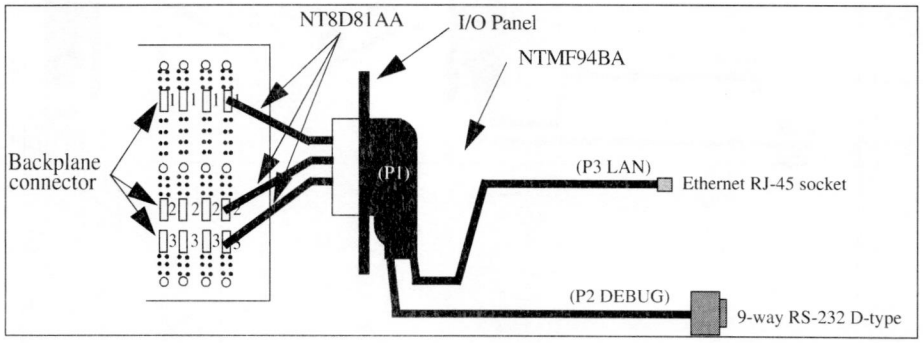
On new Option 51C to 81C systems (IPE shelf vintage NT8D37EC and later), you can use any IPE slot to house the Voice Services card. On older Option 51C to 81C systems, by default, only slots 0, 4, 8, and 12 can be used for Voice Services cards, as these are fully wired on the IPE shelf backplane. If the card is placed in any other slot, you must install an NT8D81AA backplane to I/O panel cable to connect all the required signals to the I/O panel.

Note: The NT8D81AA cable is not supplied with Symposium Express Call Center and must be purchased separately from Nortel Networks.

NT8D37EC shelf

On the NT8D37EC shelf, in Figure 3, the backplane connectors L1, L2, and L3 from each card slot cable to an input/output connector. Also, on this shelf, a Voice Services card works in any card slot from 0 to 15. See Figure 3 below.

Figure 3: NT8D37EC shelf cabling



The NTMF94BA cable breaks out the backplane signals into an Ethernet port (10-Base-T) and a serial RS-232 port. This is the same RS-232 port as is presented to the faceplate mini-DIN connector.

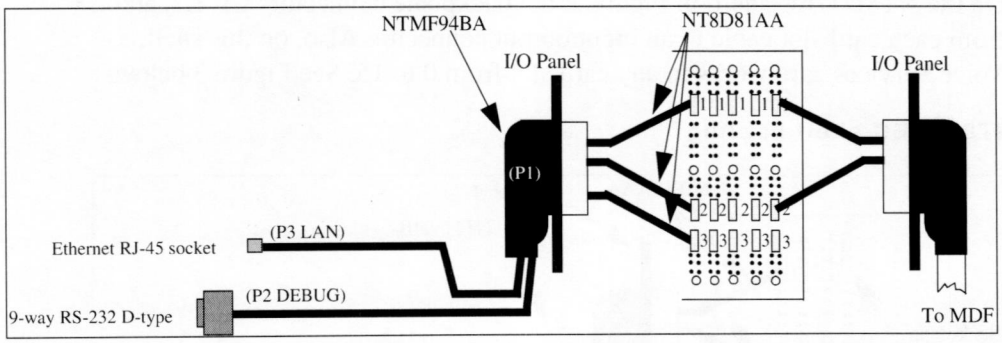
The Ethernet port of the NTMF94BA has a single female RJ-45 connection, so that you can use a standard 10-Base-T Ethernet cable to connect it to the LAN/hub. You can remove the female adapter included with the cable if the RJ-45 cable can be plugged directly into the ELAN hub. The NTMF94BA cable is secured to the I/O panel using a screw and a cable tie (large systems only).

Note: You must install the RJ-45 cable on the ELAN to provide more reliability. Although the card is installed on the ELAN, you manage the card from the CLAN from a client PC.

NT8D37DC shelf

On the NT8D37DC shelf, in Figure 4, the backplane connectors L1, L2, and L3 from card slot 0, 4, 8, and 12 are cabled to I/O connectors A, E, K, and R. The remaining card slots have only backplane connectors L1 and L2 cabled to the I/O connectors. With the NT8D37DC shelf, a Voice Services card only works in card slots 0, 4, 8, and 12, unless you install cable NT8D81AA. See Figure 4 on page 24.

Figure 4: NT8D37DC shelf cabling



Assigning network information

You must manually assign an Internet Protocol (IP), a Subnet mask, and a default Gateway IP address to the Voice Services card through the serial port interface, using these functions:

- lnIsa_writeIP
- lnIsa_writeSubnetMask
- lnIsa_writeGW

Note: All these commands are case-specific. If you enter any part of the command in the incorrect case, the command fails. Also, the first letter in each function is a lowercase 'l' (as in lima), and the third letter in each function is an uppercase 'I' (as in Indigo).

These functions set the IP address, the Subnet mask, and default Gateway IP address respectively, and store them in the Non Volatile RAM (NVRAM). When the system is restarted, the Voice Services card retrieves the network information from NVRAM.

CAUTION

Risk of network failure

The assignment of an IP address requires care to ensure that you have a unique IP address, the correct Subnet Mask, and the correct default Gateway IP address. An incorrect IP address or Subnet Mask can bring down the LAN to which the card is connected. An incorrect Gateway Address means that the card is inaccessible beyond its local LAN.

To assign or change the IP address, Subnet mask, and the default Gateway IP address

Make sure you have a unique, valid IP address (ELAN), Subnet mask, and default Gateway IP address for the Voice Services card. Use this procedure to assign an IP address, Subnet mask, and default Gateway IP address if commissioning the card for the first time. Also, use this procedure if you want to change network details associated with the card. If you are not commissioning the card for the first time, ensure you make the changes in a scheduled maintenance slot.

1 If you are assigning the IP address, Subnet mask, and default Gateway IP address for the first time, initiate a HyperTerminal session with the Voice Services card, using the following settings:

Bits per second: 9600
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None

Result: The Login: prompt appears.

2 Log on as user **vpsdseuser** with the appropriate password.

Note: Whenever you enter a successful command, you get a response of value = 0 = 0 x 0.

3 At the command prompt, type **maintModeOn**, and then press Enter.

Result: The Voice Services card is in maintenance mode.

4 Assign a static IP address by doing the following:

a. Type **lnIsaIPMethodSet 2**, and then press Enter.

Note: The first letter of the command is **l** (as in lima) and the third letter is **I** (as in Indigo).

b. Type **lnIsa_writeIP "*<aaa.bbb.ccc.ddd>*"**, and then press Enter.

<aaa.bbb.ccc.ddd> is the IP address of the Voice Services card.

Note: The double quotes are mandatory.

5 To specify a subnet mask, at the command prompt, type **lnIsa_writeSubnetMask "*<aaa.bbb.ccc.ddd>*"**, and then press Enter.

6 To specify a default gateway (optional), at the > prompt, type **InIsa_writeGW "*<aaa.bbb.ccc.ddd>*"**, and then press Enter.

7 To turn off maintenance mode, at the command prompt, type **maintModeOff**.

8 To make the changes take effect, at the command prompt, type **sysReboot** or press the Reset button on the faceplate.

Note: If the IP address is not unique, the following message appears on the terminal attached to the faceplate connector: `0x12c3f84 (tNetTask) duplicate IP address '<hex value>' sent from Ethernet address <address>`. If this message appears, you must assign another address.

9 You know that the card has completed restarting when you receive the message, `Waiting for DSPM to initialize`.

10 Press Enter to get the logon prompt.

11 Choose Call → Disconnect to end the HyperTerminal session.

Note: The network details and RAM appear in the system restart information. To see an example of a system restart, refer to Appendix A, "System restart example."

To check the IP address

1 Log on as user **vpsdseuser** with the appropriate password.

2 Type **hostShow.**

Result: The card's IP address appears.

Although the Voice Services card is located on the ELAN network, it is possible to administer files and directories from a client CLAN connection through the Symposium Express Call Center client application. This facility is part of the Voice Services client application. When a Voice Services treatment is being created, the administrator can browse the contents of the Voice Services PCMCIA storage card and do procedures such as add, create, or delete operations on prompt files and folders. For more information, see the *Symposium Express Call Center Call Center Management Guide*.

Upgrading the Voice Services card

Introduction

Check the version number of the firmware and loadware on the Voice Services card to ensure that they are the latest available version. (The *Symposium Express Call Center Distributor Technical Reference* contains the latest firmware versions.)

To determine the firmware version

1 Establish a serial connection to the Voice Services card, using either the mini-DIN connector on the faceplate or the backplane connector.

For more information, see "Cabling the Voice Services card" on page 22. For information on the serial connection, see the *Voice Services Card Maintenance and Troubleshooting Guide*.

2 Restart the card by pressing the Reset button on the faceplate.

Result: The version numbers of the card firmware appear. The following is an example of a startup sequence:

```
VPS Firmware Rls 5.0
8051XA Firmware Version 6.3 29 August 2000
(C) Nortel Networks Inc. 2000
32K External RAM detected
8K DPRAM detected
Dongle serial number: 10062387
All FPGAs are configured
All self tests have passed
1234
Memory Test Completed OK

BIOS ROM Version 4.1
Copyright: Nortel Inc., 1996-2000
...
```

To determine the loadware version

1 Log on to the Voice Services card, and then run the command *swInfoGet*.

Result: The *swInfoGet* command indicates the version. The following is an example:

```
-> swInfoGet
SECC Voice Services Rev: 01:04
DSP 0 Software Stream: NG0303_   Date: 990920
DSP 1 Software Stream: NG0303_   Date: 990920
*Dsp Card in slot 2 not inserted
value = 0 = 0x0
-> XA Firmware Release: (null)
```

To upgrade the loadware

Use this procedure to upgrade the Voice Services application loadware if commissioning the card for the first time. If you are not commissioning the card for the first time, ensure you make the changes in a scheduled maintenance slot.

To upgrade the loadware, follow this procedure on the Symposium Express Call Center server:

1 From the Windows Start menu, choose Programs → MSDOS Prompt.

Result: The MSDOS Prompt window appears.

2 Type **ftp**, and then press Enter.

3 Type **open *<aaa.bbb.ccc.ddd>***, and then press Enter.

<aaa.bbb.ccc.ddd> is the IP address of the Voice Services card.

4 Type **vpsdseuser**, and then press Enter.

Result: The `password>` prompt appears.

5 Enter the appropriate password, and then press Enter.

6 Initiate a HyperTerminal session with the Voice Services card.

7 To check the current directory, at the → prompt, type **pwd**, and then press Enter.

This checks the present working directory. The directory should be the drive in which you inserted the PCMCIA storage card. If it is not, type **cd "/*X*:"**, (where *X:* is the proper directory), and then press Enter.

Note: You must type the double quotes.

8 In the MS-DOS window, at the `ftp>` prompt, type **put <*filename*>.mms**, and then press Enter.

9 In the HyperTerminal session, at the → prompt, type **upgradePCMCIA "/<*x*>:<*filename*>.mms"** (where *<x>:* is the drive where you inserted the PCMCIA storage card, and *filename.mms* is the new loadware image file), and then press Enter.

Result: The upgrade file transfers to the PCMCIA drive. An example of the filename is acd_login_1.08.mms.

Note: To determine which loadware file is currently installed, at the → prompt, type **ll** (two lowercase 'l' as in lima) to see a list of files in the directory.

10 In the MS-DOS window, type **bye** to end the ftp session.

11 In the HyperTerminal session, at the → prompt, type **sysReboot** to restart the card.

12 Choose Call → Disconnect to end the HyperTerminal session.

Configuring the Voice Services card on the switch

Introduction

To configure the Voice Services card, complete the following tasks, which are described in this section:

1. Configure the IVR ACD DNs and night call forward.
2. Configure the Auxiliary Data System data block.
3. Configure Voice Services ports.

This section also describes how to

- enable or disable Voice Services ports
- replace a Voice Services card in the switch

To configure the IVR ACD DNs and night call forward

Note: To increase stability, you must configure night call forward (NCFW) on the Voice Services IVR ACD DN. Calls from the associated IVR ACD DN are automatically transferred to the NCFW DN if all Voice Services ports are logged off.

1 Log on to the switch.

2 Load Overlay 23 by typing **LD 23** at the prompt.

3 Respond to the prompts as shown in the following table. If a prompt appears that is not in the table, press Enter to accept the default value:

Prompt	Response	Description
REQ	NEW CHG	Add or change
TYPE	ACD	Automatic Call Distribution
CUST	0–99	Customer Number

Prompt	Response	Description
ACDN	*xxxx*	ACD Queue DN
...		
MAXP	*xxxx*	Maximum Agent Positions. Each Voice Services port counts towards the maximum value entered here, and also towards the ISM limit.
NCFW	*xxxx*	Night Call Forward DN. This parameter must be set. It is also used if all ports are logged off, which may indicate an underlying problem.
IVR	YES	Interactive Voice Response. This is defined so that Symposium Express Call Center can acquire the queue and receive messaging related to the queue.
MWC	YES	Message Waiting Center. This is required for Symposium Express Call Center.
ALOG	No	

4 Type **** to exit from the overlay.

5 Continue with "To configure Voice Services ports" on page 33 to configure each Voice Services port associated with the ACD.

To configure the Auxiliary Data System data block

You must configure the Auxiliary Data System (ADS) data block so that the Voice Services ports can log on, to enable Agent ID mode, and to set a lower and upper bound on Agent positions.

1 Log on to the switch.

2 Load Overlay 23 by typing **LD 23** at the prompt.

3 Respond to the prompts as shown in the following table. If a prompt appears that is not in the table, press Enter to accept the default value:

Prompt	Response	Description
REQ	NEW	
TYPE	ADS	
CUST	0	Customer number
AID	YES	Enables agent ID. This mode allows agents to specify an agent ID when logging on to a set.
- IDLB	0001	Agent ID Lower Boundary. The lowest Agent ID that can log on to the queue. Set to a low value to allow more valid agent IDs.
- IDUB	9999	Agent ID Upper Boundary. The highest Agent ID that can log on to the queue. Set to a high value to allow more valid agent IDs.
LOG	*xxxx*	Login Maximum. The maximum number of agents that can be logged on at any one time.

4 Type **** to exit from the overlay.

5 Log off the switch.

To configure Voice Services ports

Overlay 11 is used to configure Voice Services ports. You configure Voice Services ports when you are commissioning the card for the first time, and if you are upgrading the card to increase the number of ports. If you are adding new ports, you must stop the Voice Services service.

Note: The number of Voice Services ports configured must exactly match the number of keycoded Voice Services ports.

1 Log on to the switch.

2 Load Overlay 11 by typing **LD 11** at the prompt.

3 Respond to the prompts as shown in the following table. If a prompt appears that is not in the table, press Enter to accept the default value:

Prompt	Response	Description
REQ:	NEW CHG	Add or change.
TYPE:	2616	Ports *must* be configured as M2616.
TN	*l s c u*	Terminal Number
DES	d..d	Designator (that is, VPS)
CUST	0–99	Customer Number
...		
TGAR	0	Trunk Group Access Restriction
CLS	FLXA	The FLXA class of service is required for ports 16–24 if configured.
...		
KEY	0 ACD *xxxx* 0 *yyyy*	Key 0 is defined as an ACD key specifying queue ID (xxxx) and position ID (yyyy). **Note**: The position ID must *not* be greater than 4 digits in length or less than 2 digits in length. Position IDs outside of this range result in channel logon failures.
KEY	1 SCR *xxxx*	Single Call Ringing (DN) key
KEY	2 TRN	Transfer key. Incoming Calls will be transferred to a Default DN if contact is lost with Symposium Express Call Center.
KEY	3 MSB	Make Set Busy key. The Voice Services port must be logged off the ACD Queue and must not receive any calls while not controlled by Symposium Express Call Center. Incoming calls are diverted to the Night ServiceDN for the ACD queue.
KEY	4–15	UNCONFIGURED

4 Type **** to exit from the overlay.

5 Repeat this procedure for each Voice Services port that corresponds to the ACD.

6 Load Overlay 43 by typing **LD 43**.

7 Type **EDD** to execute a data dump to back up the data you entered.

8 Log off the switch.

To enable or disable Voice Services ports

Use LD 32 overlay to enable and disable the Voice Services card. You also use LD 32 overlay to check the port status.

ATTENTION

Never configure more ports on a Voice Services card than the keycode or DSP infrastructure allow (whichever is lower). The extra ports will not be usable for Voice Services.

Important: The base card DSP capacity is 8 ports. Each additional DSP module adds another 8 ports, up to a maximum of 24 ports. The number of ports enabled by the keycode appears on the faceplate by K:*XX*, where *XX* is the number of enabled ports.

Note: Nortel Networks recommends that the operator disable all Voice Services card digital units in LD 32 before moving (MOV) or removing (OUT) them in LD 11. This is because the Voice Services card does not receive any messages from the switch on a move or an out command. This can lead to Voice Services ports being left in an indeterminate state, as the Voice Services card receives no indication that the port has been moved or outed.

Note: Perform this procedure only if the Voice Services card is not functioning properly or if calls are not routed as intended. You may cause problems if you stop and start the Voice Services card.

1 Log on to the switch.

2 Load Overlay 32 by typing **LD 32** at the prompt.

3 Use the following commands to enable or disable Voice Services ports:

Command	Description
ENLC *l s c*	Enables the Voice Services card.
ENLU *l s c u*	Enables a unit (Voice Services port).
DISC *l s c*	Disables the Voice Services card.
DISU *l s c u*	Disables a unit (Voice Services port).
STAT *l s c*	Displays the status of the card and a brief status of all units.
STAT *l s c u*	Displays the status of one unit (Voice Services port).

4 Type **** to exit from the overlay.

5 Log off the switch.

Replacing a Voice Services card

Introduction

Use this procedure to replace the Voice Services card in the switch. Ensure you make the changes in a scheduled maintenance slot.

Before you begin

A replacement Voice Services card ships without a dongle, PCMCIA storage cards, or DSP cards. You must transfer the dongle and cards from the original Voice Services card to the new card.

ATTENTION

Before you replace a Voice Services card in the switch, you must shut down the Voice Services service from the Symposium Express Call Center. (Callers will not receive treatments while the Voice Services service is down.)

To replace a Voice Services card in the switch

1 Based on the type of cable connection, you must disconnect the cable from the backplane in one of the following ways:

- Disconnect the backplane cable, which connects the IPE shelf backplane to the corresponding port on the I/O panel.
- If you are using an Ethernet/serial port cable, disconnect the cable from the I/O panel.
- If you are using an RJ-45 Ethernet/serial port cable, disconnect the cable from the ELAN.
- Disconnect the faceplate cable from the RS-232 cable (the round serial connector at the bottom of the faceplate-DN8 connector) on the Voice Services card from the COM port on a PC.

2 Remove the Voice Services card from the switch.

3 Remove any PCMCIA storage cards and DSP cards from the old card.

Note: Take care not to mix up the cards. In particular, take care not to insert a card incorrectly in slot B:, when it was originally installed in slot A:.

4 Remove the dongle from the socket on the Voice Services card.

5 Insert the dongle into the socket of the new Voice Services card.

6 Insert any PCMCIA storage cards and DSP cards into the new card.

7 Insert the Voice Services card into the IPE slot in the switch.

8 Do a loadware upgrade if necessary.

Precautions for handling circuit cards

CAUTION

Risk of equipment damage

Module covers are not hinged; when removing them, do not let go of the covers. Lift covers away from the module and set them out of your work area.

DANGER

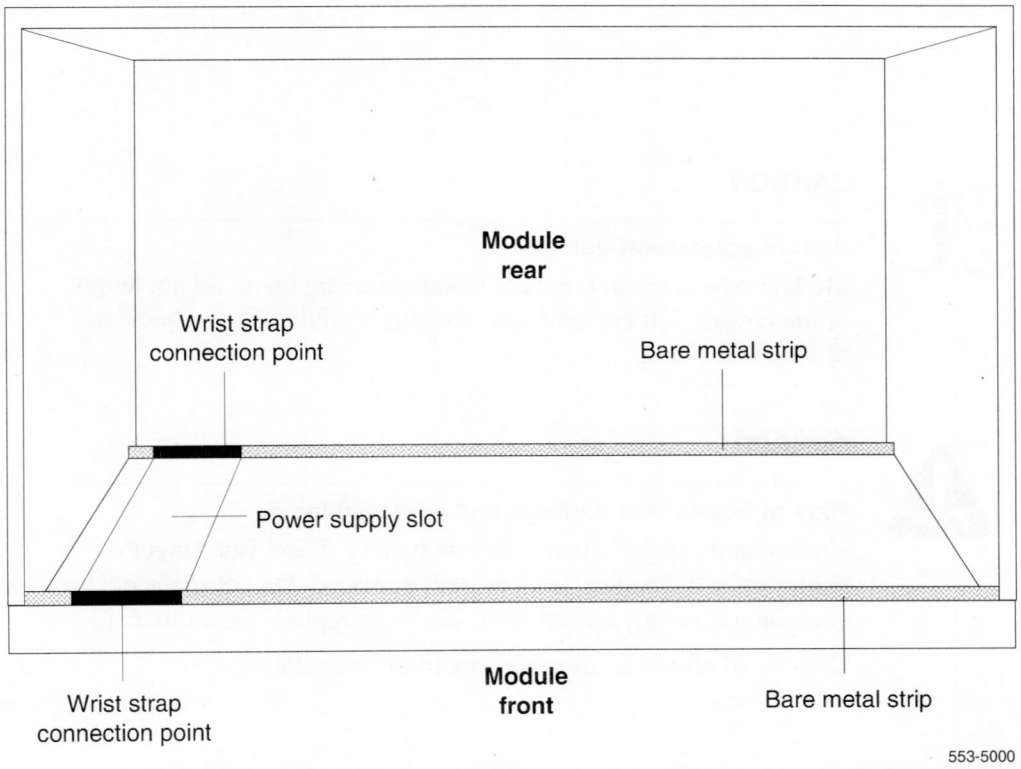
Risk of equipment damage and personal injury

Circuit cards may contain a lithium battery. There is a danger of explosion if the battery is incorrectly replaced. Do not replace components on any circuit card; you must replace the entire card.

Dispose of circuit cards according to the manufacturer's instructions.

To avoid personal injury and equipment damage when handling circuit cards, follow the guidelines listed on page 40.

Figure 5: Static discharge points



Complete the following tasks during repair and maintenance procedures:

- Turn off the circuit breaker or switch for a module power supply before the power supply is removed or inserted.
- Software disable cards, if applicable, before they are removed or inserted.
- Whenever there is an enable/disable switch, hardware disable cards before they are removed or inserted.
- Return defective or heavily contaminated cards to a repair center. Do not try to repair or clean them.

Appendix A

System restart example

Introduction

This appendix provides a sample of the system restart (reboot) to illustrate the system information available.

Sample system restart

-> **sysReboot**

```
              123456

Memory Test Completed OK
BIOS ROM Version 4.1
Copyright: Nortel Inc., 1996-2000

Memory Config:  10101000
Memory Size:  0x01000000
PCI Chipset Init Done
Enter jkl to force boot from BIOS ROM
00000015
Flash Size: 0x00400000
11 0xF8500000
00 0xF9800000
00 0xF9900000
11 0xF9A00000
11 0xF9B00000

Cookie array value:     0x11110000
```

```
Checksum Validation at Bank Address: 0xF9800000
Checksum in ROM =        22399E56
Length of bank  =        0009D738
Calculated Checksum =    22399E56
Checksum Validation at Bank Address: 0xF9900000
Checksum in ROM =        0E4BE3BA
Length of bank  =        0009B9A8
Calculated Checksum =    0E4BE3BA
Checksum array value:    0x11110000
Loading code from address: F9800010
Cookie Address : 0xF9800010
Cookie Value   : 0x90909090
Verifying ROM to RAM copy...

ROM to RAM copy completed OK
Jumping to VxWorks at 0x00E00000
EIP = 0x00E0011E
Jumping to romStart at 0x00E00300
Uncompress Passed OK
Testing L2 Cache: 0x00020000

Memory already configured
Memory Configuration:
SIMM:      16MB
Total:     16MB
L2 Cache Size: 128KB
Setting tLogTask priority to 150
Found device : Cirrus CL-PD672x
PC Card Detected: Socket 0
ipMethodInit, gIPMethod = 2
IP Data in NVRAM Valid, Boot Line updated

        IP Address:220.0.0.17

        Gateway Address:47.57.0.1

        Subnet Mask:255.255.255.0

Target Name: vxTarget

User: defuser

lnIsa0 MAC Address: 00:60:38:01:31:a0
0xfffe7c (tRootTask): lnIsa0 Reset
0xfffe7c (tRootTask): lnIsa0 Reset
```

```
Attached TCP/IP interface to lnIsa unit 0
Attaching network interface lo0... done.
Adding 5111 symbols for standalone.
Development System
VxWorks version 5.4
KERNEL: WIND version 2.5
Copyright Wind River Systems, Inc., 1984-2000
CPU: VPS 486.  Processor #0.
Memory Size: 0x1000000.  BSP version 1.0/2.
->

serial number = 00000000
0xfffe7c (): task deadrecordingDiskInit: created REC:
volume (10 MB)

0xdee620 (tMaint): Task spawned.
0x3a0b7c (tDSPM): Task spawned.
0x39e2d8 (tDspEvent): Task spawned.
0x397b54 (tVpAppl): Task spawned.
0x399ce8 (tGenDTMF): Task spawned.

0x399ce8 (tGenDTMF): Task initializing...
0x39d010 (tAries): Task spawned.
0x39d010 (tAries): Task initializing...
0x3959c0 (tServer): Task spawned.
0x3959c0 (tServer): Task initializing...

0x39d974 (tDspPoll): Task spawned.
0x39d974 (tDspPoll): On-board DSP starting up...
0x39ae7c (tAriesAudit): Task spawned.
x39ae7c (tAriesAudit): Task initializing...
/A:/  - Volume is OK
0x397b54 (tVpAppl): Task initializing...
0xdee620 (tMaint): Aries go operational...
0x39d010 (tAries): Task operational.
0xdee620 (tMaint): Aries audit go operational...
0x39ae7c (tAriesAudit): Task operational.
0xdee620 (tMaint): Generate DTMF go operational...
0x399ce8 (tGenDTMF): Task operational.
0xdee620 (tMaint): VP application go operational...
0x397b54 (tVpAppl): Waiting for DSPM to initialize...
0x397b54 (tVpAppl): Waiting for DSPM to initialize...
0x397b54 (tVpAppl): Waiting for DSPM to initialize...
0x397b54 (tVpAppl): Task operational.
```

```
xdee620 (tMaint): Server go operational...
0x3959c0 (tServer): Task operational.
0x3a0b7c (tDSPM): DSP 0 boot up successful.
0x397b54 (tVpAppl): Channel created on unit 00. ID =
01110001
0x397b54 (tVpAppl): Channel created on unit 01. ID =
01110002
0x397b54 (tVpAppl): Channel created on unit 02. ID =
01110003
0x397b54 (tVpAppl): Channel created on unit 03. ID =
01110004
0x397b54 (tVpAppl): Channel created on unit 04. ID =
01110005
0x397b54 (tVpAppl): Channel created on unit 05. ID =
01110006
0x397b54 (tVpAppl): Channel created on unit 06. ID =
01110007
0x397b54 (tVpAppl): Channel created on unit 07. ID =
01110008


login:
```

End of example

Nortel Networks Symposium Express Call Center

Voice Services Card Installation Guide

Nortel Networks
Mervue Business Park
Galway, Ireland

Product release:	4.2
Document release:	Standard 1.0
Date:	April 2003

NORTEL NETWORKS™

Nortel Networks Symposium Express Call Center

Voice Services Card Maintenance and Troubleshooting Guide

Product release 4.2 Standard 1.0 April 2003

NORTEL NETWORKS™

Nortel Networks Symposium Express Call Center

Voice Services Card Maintenance and Troubleshooting Guide

Product release: 4.2
Document release: Standard 1.0
Date: April 2003

Publication history

April 2003

This is the Standard 1.0 version of the *Nortel Networks Symposium Express Call Center Voice Services Card Maintenance and Troubleshooting Guide* for Release 4.2.

Contents

List of tables

NTHF77AA Voice Services card test and debug capabilities

Introduction

The NTHF77AA Voice Services card provides maintenance and diagnostic features to identify and clear fault conditions. Also included are upgrade features that require the user to have access to the card's operating system (VxWorks). The Voice Services card features include

- self-test features
- factory-test features
- debug features (user name and password required)
- application loadware upgrade
- Digital Signal Processing (DSP) loadware upgrade
- auxiliary processor loadware upgrade
- VxWorks shell debug utilities
- setting the Internet Protocol address

Self-test features

The Voice Services card runs various diagnostics to detect hardware faults and ensure correct operation. The tests include

- 8051 power-up self-tests
- BIOS diagnostics
- base code self-tests

Progress information on self-tests is available through the serial port on the Voice Services card.

Factory-test features

Introduction

Factory-test features include the HEX Display, Status LED, and Reset Switch.

HEX display

The Voice Services card includes a HEX LED display to provide status information during maintenance operations. During power-up and diagnostic tests, this display provides a visual indication of progress, and information if a failure is detected. The HEX LED display codes are indicated in Table 2, "HEX display codes," on page 15.

During normal operation, the display cycles through the number of enabled Voice Services (M2616) ports, the number of booted DSP ports, the number of channels authorized by the keycode, and the total channel capacity of the card. For example, the HEX display appears.

Table 1: Hex display codes during normal operation

Display field	Meaning
A:XX	Number of enabled Voice Services Ports.
D:XX	Number of installed DSP ports.
K:XX	Capacity of card enabled via Keycode.
C:XX	Current capacity of card (smallest of A, D, and K).
MAIN	The card is in maintenance mode (all ports are disabled).

You can also use the RS-232 port to monitor the progress of self-tests. Messages indicating the completion of each self-test phase, as well as any detected faults, print to this port.

Status LED

A single red LED on the faceplate indicates the enabled/disabled status of the Voice Services card, and also provides an indication of the status of the power-on self-test.

The LED is OFF if

- the channel capacity of the Voice Services card is non-zero

  and

- the card is in the normal mode of operation

The LED is ON if

- the channel capacity of the Voice Services card is zero

  or

- the card is disabled from LD 32

Reset switch

A reset switch on the faceplate allows an operator to manually reset the card without having to power down. This switch is normally used to clear a fault condition during setup or non-traffic periods, and to check firmware and loadware versions.

CAUTION

Risk of equipment damage

Before using the Reset switch, ensure that the Voice Services card has been disabled in LD 32 using the DISC command. Otherwise, some of the ports may cause an OVD error on the Meridian 1 CPU and become disabled when the card resets. Once the card is active again (the HEX display has passed T:21 state), reenable the card in LD 32 using the ENLC command.

Table 2: HEX display codes

Display code	Definition
T:00	Initialization
T:01	Testing Internal RAM
T:02	Testing ALU
T:03	Testing address modes
T:04	Testing Boot ROM
T:05	Testing timers
T:06	Testing watchdog
T:07	Testing external RAM
T:08	Testing Host DPRAM
T:09	Testing DS30 DPRAM
T:10	Testing for presence of dongle (see note below)
T:11	Testing flash memory
T:12	Programming PCI FPGA
T:13	Programming DS30 FPGA
T:14	Programming CEMUX FPGA
T:15	Programming DSP FPGA
T:16	Testing CEMUX interface
T:17	Testing EEPROM
T:18	Booting 486, waiting for response with self-test information
T:19	Waiting for application start-up message from 486

Table 2: HEX display codes (continued)

Display code	Definition
T:20	cardLAN enabled, waiting for Request Config. Message
T:21	cardLAN operational, A07 enabled, display now under host control

Note: The security dongle is required for normal Voice Services card operation. During installation of the Symposium Express Call Center server software, you enter a keycode number. This keycode is matched to the dongle, and authorizes a number of channels for use.

The Voice Services card reports a missing dongle during bootup through a message on the serial connection. Once a dongle is inserted, the serial number is reported during bootup.

Debug terminal access

The Voice Services card provides two RS-232 ports—one accessible via the NTMF94BA backplane cable, and the other using the maintenance port on the card faceplate. Only the backplane cable labeled COM1 provides access to the Voice Services card for both OA&M and debugging purposes. The pinouts for the RS-232 ports are listed in Table 4, "RS-232 backplane signals," on page 17, and in Table 5, "Faceplate mini-DIN connector," on page 18. Messages indicating the completion of each self-test phase, as well as any detected faults, are printed.

Table 3: Serial port settings

Bits Per Second	9600
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

CAUTION

Risk of equipment damage

Two serial connectors are available—the mini-DIN connector on the faceplate, and the backplane cable marked COM1. However, you can only use one connector at one time, as both are connected to the same serial port.

When configuring the serial communications program, you must use the settings given in Table 3, "Serial port settings."

Table 4: RS-232 backplane signals

Pin No.	Signal	Dir	Description
69A	SGNDA	C	Port A Signal Ground
69B	BDCDA-	I	Port A Data Carrier Detect
73A	BSINA-	I	Port A Serial Data In
73B	BSOUTA-	O	Port A Serial Data Out
74A	BDTRA-	O	Port A Data Terminal Ready
74B	BCTSA-	I	Port A Clear To Send
75A	BDSRA-	I	Port A Data Set Ready
75B	BRTSA-	O	Port A Request To Send

Table 4: RS-232 backplane signals (continued)

Pin No.	Signal	Dir	Description
76A	SGNDB	C	Port B Signal Ground
76B	BSINB-	I	Port B Serial Data In
77A	BSOUTB-	O	Port B Serial Data Out
77B	BDCDB-	C	Port B Data Carrier Detect
78A	BDTRB-	O	Port B Data Terminal Ready
78B	BDSRB-	I	Port B Data Set Ready

Table 5: Faceplate mini-DIN connector

Pin No.	Signal	Dir	Description
1	BDTRB-	O	Port B Data Terminal Ready
2	BSOUTB-	O	Port B Serial Data Out
3	BSINB-	I	Port B Serial Data In
4	SGND	C	Signal Ground
5	BSINA-	I	Port A Serial Data In
6	BCTSA-	I	Port A Clear To Send
7	BSOUTA-	O	Port A Serial Data Out
8	BDTRA-	O	Port A Data Terminal Ready

Debug features

While the Voice Services card is booting, the 8051 auxiliary processor has control of the serial port, and uses it to provide debug information, progress of self-tests, and so on. Once the 8051 releases the main processor (i486) from reset, the main processor by default grants VxWorks shell access through this port. The Voice Services card also supports remote access to the shell via a telnet connection.

Once the card is operational, the RS-232 port can be used to monitor cardLAN and Time Compression Multiplexing (TCM) signaling between the card and the Meridian 1 system.

Startup messages

When the card boots, a variety of diagnostic messages print to the serial port, including hardware test results. These messages also include firmware version information:

```
VPS Firmware Rls 5.0
8051XA Firmware Version 6.3 29 August 2000
(C) Nortel Networks Inc. 2000
32K External RAM detected
8K DPRAM detected
Dongle serial number: 10062387
All FPGAs are configured
All self-tests have passed
1234
Memory Test Completed OK

BIOS ROM Version 4.1
Copyright: Nortel Networks Inc., 1996-2000
...
```

VxWorks shell

The VxWorks shell is used for performing basic administrative and management tasks, the most important of which is loadware upgrade. You can access the VxWorks shell through a serial connection from a PC or a telnet connection.

The shell is protected from unauthorized access by a username and password. This password is common across FTP, telnet, and the serial port. If the shell is idle for a period of time, the shell is logged off, and the password and username must be reentered to gain access. This time-out defaults to 10 minutes, but it can be set to any value between 30 and 4095 seconds (1 hour 8 minutes 15 seconds) using the *shell* function *shellTimeoutSet n*, where *n* is the desired time-out in seconds. The current value of the shell time-out in seconds is returned by the shell function *shellTimeoutGet*:

```
-> shellTimeoutSet 600
-> shellTimeoutGet
value = 600 = 0x258
```

The shell time-out is stored in NVRAM, so changes are maintained across a restart.

Note: Once the shell username and password have been successfully entered, the user has complete access to all the VxWorks commands. Incorrect usage of some shell commands causes the voice processing (VP) services loadware to restart, and may change operational behavior.

To exit from the shell and return to the logon: prompt at any time, type the command **logout**.

Application loadware upgrade

The Voice Services card stores up to two versions of loadware in Flash. This mechanism ensures that if there is a power outage or other failure during upgrade, the card still has a valid load in Flash. A small boot code segment is located in the BIOS Flash area, which chooses the "newest" load from one of two Flash banks to uncompress into DRAM. Once the uncompress has completed, execution switches to the code entry point in DRAM.

During upgrade, the Flash bank with the oldest load is erased and the new load is stored in this area. Once the upgrade has completed successfully, the new load is marked as "newer." If the upgrade fails for some reason (for example, checksum corruption), the older load remains the boot image. A failed upgrade will not checksum correctly and, therefore, will not be selected by the load chooser algorithm in the boot ROM. You must restart or reset the card for the new loadware to execute.

Before an upgrade can be performed, the Voice Services card must first be disabled from LD 32 using the DISC command. The Voice Services card service on the Symposium Express Call Center must also be stopped. The card is reenabled, and the service is restarted after the Voice Services card upgrade is complete.

There are two options for upgrading the loadware. The first option is to use an FTP Client to connect to the card, copy the loadware onto the PCMCIA /A: or /B: disk of the card, and then do the upgrade from there using the command *upgradePCMCIA*. This option takes the loadware file from the PCMCIA disk and programs it into Flash. The second option is to place the loadware file on an FTP server, and use the *upgrade* command to retrieve the file from the FTP server and program it into Flash. Both options are described below.

To upgrade the loadware from the PCMCIA disk

For information on upgrading the loadware, see the *Symposium Express Call Center Voice Services Card Installation Guide*.

To upgrade the loadware from an FTP server

To upgrade the loadware over the network from an FTP server, you must copy the loadware binary file to an FTP server, and then run the upgrade.

1 From the Windows Start menu, choose Programs → MSDOS Prompt.

Result: The MSDOS Prompt window appears.

2 Type **ftp**, and then press Enter.

3 Type **open *aaa.bbb.ccc.ddd***, and then press Enter.

aaa.bbb.cc.ddd is the IP address of the Voice Services card.

4 At the ftp prompt, type **vscard**, and then press Enter.

5 Type **vpsdseuser**, and then press Enter.

6 The `password>` prompt appears.

7 Enter the appropriate password, and then press Enter.

8 Type **bin**, and then press Enter.

Result: The data connection is set to binary mode.

9 Type **put *filename.mms***

where *filename* is the latest version of the loadware.

Result: The loadware file transfers.

10 Type **bye** to close the connection.

To run the upgrade

Use the upgrade command in the VxWorks shell:

-> upgrade "server IP address","userid","password", "path","filename.mms"<CR>

Note: The *userid* and *password* are those of the FTP server, the *path* is the path to the file on the FTP server, and the *filename* is the latest version of the loadware.

```
Connecting to <server IP address>...
connected to <server IP address OK>
Updating sector: 16..17..18..19..20..21..22..23..file
read complete
Program Address = 0xf9900000, Checksum =
0x51a4737d,length = 0x76338
Upgrade completed OK
Reboot the pack to run new loadware
value = 0 = 0x0
-> sysReboot
```

Note: The updated sectors for Bank 1 start at sector 16 (as in the example above), whereas the start sector for Bank 0 is sector 0. Successive successful upgrades alternate between banks for storing the upgrade image.

The Voice Services card must be disabled via LD 32 on the Meridian 1 switch before an upgrade can be executed. Once the upgrade is complete, the card can be reenabled via LD 32. For more information, see the *Symposium Express Call Center Voice Services Card Installation Guide*.

The Voice Services card service on the Symposium Express Call Center server must also be disabled before an upgrade, and restarted after the upgrade is complete.

Voice prompt file system upgrade

The voice prompt file system can be upgraded using FTP. The Voice Services card acts as an FTP server for this procedure. Clients can log on to the Voice Services card and update the voice prompt files on the PCMCIA card-based Flash disk. This function should only be performed while the Voice Services card is idle (not handling calls).

A PCMCIA card inserted in the front panel A: socket always appears as the DOS volume "/A:". A PCMCIA card inserted in the internal B: socket is mounted as DOS volume "/B:". After logging on to the Voice Services card by FTP, the command cd "/A:" or cd "/B:" must be executed to access the desired disk.

Note: Double quotes are needed around the disk name.

The VxWorks FTP server supports the following commands from an FTP client:

get/mget - Get a file or files from the remote file system.
put/mput - Put a file or files on the remote file system.
mkdir/rmdir - Make or remove a directory on the remote file system.
delete/mdelete - Remove a file or files from the remote file system.

Note: Nortel Networks recommends that the number of files in a directory not exceed 300.

Voice prompt backup

You can use FTP to back up the PCMCIA card disk. As the disk contains all prompts for use with Symposium Express Call Center Voice Services, Nortel Networks recommends that the contents be backed up periodically in case of disk corruption, or in case prompts are deleted in error.

Use a command line FTP client to change to each directory on the PCMCIA disk, and the command *mget* to get the files you want to back up. Alternatively, use a graphical FTP client to copy the entire PCMCIA disk at once.

VxWorks shell debug utilities

Several debug utilities are available from the VxWorks shell, which can be used to print the state of certain global variables. The following table provides a list of available debug commands:

Table 6: Debug commands

Command	Description
printAllErrors	Prints logged fatal errors.
getAriesState	Prints current state of all 32 M2616 (Aries) sets.
printAriesState n	Prints globals associated with M2616 (Aries) set 'x'.
printVpGlobs	Prints all VP globals.
printVpChannel n	Prints globals associated with VP channel 'x'.
tr "tMaint"	Resumes suspended task 'tMaint'.
swInfoGet	Prints the loadware, DSP, and 8051XA firmware versions.
ifShow	Prints the IP and Ethernet addresses.
inetstatShow	Prints the status of all network links.
ping "10.0.0.2",x	Pings IP address 10.0.0.2 'x' number of times. Press Ctrl+C to stop to return to VxWorks shell.

Card utilization

You can monitor the utilization per channel on the Voice Services card. This can be useful to ensure that the card is not overloaded with traffic.

To monitor card utilization

1 Log on to the Voice Services card.

2 To start monitoring, type **usageClkStart**.

3 To end monitoring, type **usageClkStop**.

4 To get a report of the data collected, type **usageReport**.

Fatal error logging

When the Voice Services card encounters a problem that is classed as a *Fatal Error*, it logs the error in NVRAM and, if relevant, prints messages to the VxWorks shell. The Voice Services card is then restarted. If a *Fatal Error* is logged three times within a certain period, the tMaint task suspends itself on startup to prevent further restarts and to allow debugging of the errors.

The NVRAM stores up to six fatal errors, starting with the most recent one. The command *printAllErrors* is used to show the errors, and appears as follows:

```
-> printAllErrors
Error (1): Error Code 0x3001, logged at 23:35:11 05/02/
1998
Error (2): Error Code 0x4004, logged at 23:33:13 05/02/
1998
Error (3): Error Code 0x5003, logged at 23:31:02 05/02/
1998
Error (4): Empty
Error (5): Empty
Error (6): Empty
value = 30 = 0x1e
```

Each error consists of a four-digit hex identifier and a time stamp. The first digit of the identifier corresponds to the task that logged the error; the other three digits make up a unique error number. Each of the following tables gives a brief explanation for the fatal errors logged by every task:

Table 7: Maintenance task fatal errors

Error ID	Description
0x1001	Serious hardware fault found during bootup
0x1002	VP Application startup failed
0x1003	Error initializing Maint Task
0x1004	Process incoming base code events other than VP Application tasks: task in ERROR state
0x1005	A VP task failed self-test
0x1006	Aries Task failed to go operational
0x1007	VP Application Task failed to go operational
0x1008	Task suspended itself three times

Table 8: Networking task fatal error

Error ID	Description
0x12c3f84	Duplicate IP address used when commissioning the card

Table 9: Server task fatal fatal error

Error ID	Description
0x2001	Ethernet device has no IP address
0x2002	Error opening VP-AP Master socket
0x2003	Error binding a network address (name) to the socket
0x2004	Error enabling connections to the socket

Table 9: Server task fatal fatal error (continued)

Error ID	Description
0x2005	Error in accepting connection from a client
0x2006	Error; Main Server Task loop exited

Table 10: VP application task fatal errors

Error ID	Description
0x3001	Malloc failed during DSP card Removal
0x3002	Malloc failed during handling of channelRelease action
0x3003	Malloc failed during handling of clientRelease action
0x3004	Malloc failed during handling of clientRelease action
0x3005	Malloc failed during handling of modifycardState action
0x3006	Malloc failed during handling of EnableDigitNotification action
0x3007	Malloc failed during handling of action to Aries task
0x3008	Message send to the VP Application Task fails
0x3009	Message send to the VP Application Task fails
0x300A	Malloc failed during posting of event to all clients
0x300B	Malloc failed during shell function call
0x300C	Malloc failed during retrieval of segmentSet Id
0x300D	Malloc failed during creation of segment path name
0x300E	Malloc failed during creation of segment path name
0x300F	Malloc failed during copying of action
0x3010	Channel in incorrect state while verifying generateDTMF action

Table 10: VP application task fatal errors (continued)

Error ID	Description
0x3011	Channel in incorrect state while verifying stopVoice action
0x3012	Channel in incorrect state while verifying playAnnouncement action
0x3013	Channel in incorrect state while verifying collectDigits action
0x3014	Malloc failed during creation of bitmapped array
0x3015	Malloc failed during creation of bitmapped array
0x3016	Realloc failed during changing of bitmapped array
0x3017	Malloc failed during copying of bitmapped array
0x3018	Malloc failed during handling of DSP card removal
0x3019	Malloc failed during handling of DSP card removal
0x301A	Malloc failed during channel creation
0x301B	Transaction error during prompt playback
0x301C	Transaction error during stopping of prompt playback
0x301D	Malloc failed during request creation
0x301E	Malloc failed during request creation
0x301F	Transaction error during emptying of request list
0x3020	Malloc failed during request creation
0x3021	Malloc failed during request creation
0x3022	Incorrect channel state when handling dsp play finished message
0x3023	Malloc failed during handling of dsp play finished message

Table 10: VP application task fatal errors (continued)

Error ID	Description
0x3024	Invalid action type found during handling of dsp play finished message
0x3025	Incorrect channel state when handling dsp play finished message
0x3026	Malloc failed during handling of dsp play finished message
0x3027	Invalid action type found during handling of dsp play finished message
0x3028	Malloc failed during handling of dsp digit detection message
0x3029	Malloc failed during forwarding of digit event
0x302A	Malloc failed during handling of channelAcquire error
0x302B	Malloc failed during handling of channelAcquire error
0x302C	Malloc failed during initialization of VP App task globals
0x302D	Error during channel acquire; channel not in enabled state
0x302E	Malloc failed during handling of channelSplit RFA
0x302F	Malloc failed during handling of channelSplit RFA
0x3030	Malloc failed during handling of clientMessage
0x3031	Malloc failed during handling of digitTimeoutEvent
0x3032	Malloc failed while searching for a free transaction
0x3033	Malloc failed while searching for a free transaction

Table 11: Aries task fatal errors

Error ID	Description
0x4002	Malloc failed during handling of channelAcquire action
0x4003	msgQSend failed after makeCallTimer timeout
0x4004	msgQSend failed after transferCallTimer timeout
0x4005	msgQSend failed after addOnCallTimer timeout
0x4006	msgQSend failed after noHoldConferenceCallTimer timeout
0x4007	Malloc failed during handling of system companding law message
0x4008	Malloc failed during handling of system companding law message
0x4009	Malloc failed during sending of cardReset message to Meridian Manager task
0x400A	Malloc failed during forwarding of an RFA message to the VP App task
0x400B	msgQSend failed during forwarding of an RFA message to the VP App task
0x400C	Malloc failed during forwarding of an RFA message to the VP App task
0x400D	msgQSend failed during forwarding of an RFA message to the VP App task
0x400E	Malloc failed during forwarding of an Event to the VP App task
0x400F	msgQSend failed during forwarding of an Event to the VP App task
0x4010	Malloc failed during forwarding of a displayEvent to the VP App task

Table 11: Aries task fatal errors (continued)

Error ID	Description
0x4011	Malloc failed during forwarding of a displayEvent to the VP App task
0x4012	msgQSend failed during forwarding of an Event to the VP App task
0x4013	Error; Main Aries Task loop exited
0x4015	msgQReceive failed in Aries task input queue
0x4016	Malloc failed during handling of message from VP App task
0x4017	Error; Aries Audit task loop exited
0x4018	Malloc failed during construction of DS30 message
0x4019	Malloc failed during construction of DS30 message
0x401A	Malloc failed during extraction of DS30 message from Meridian Manager
0x4020	msgQSend failed after answerCallTimer timeout
0x4021	msgQSend failed after disconnectCallTimer timeout
0x4022	msgQSend failed after conferenceCallTimer timeout
0x4023	msgQSend failed after retrieveOriginalTimer timeout
0x4024	msgQSend failed after channelReleaseTimer timeout
0x4025	msgQSend failed after retryReleaseTimer timeout
0x4026	msgQSend failed after finalRetryTimer timeout
0x4028	Error in creating ring buffer while initializing Aries task
0x4030	Error in filling ring buffer when sending key press message to Meridian Manager

Table 11: Aries task fatal errors (continued)

Error ID	Description
0x4031	Error in filling ring buffer when sending message to Meridian Manager
0x4032	Error in filling ring buffer when sending message to Meridian Manager
0x4033	Error in filling ring buffer when sending message to Meridian Manager
0x4034	Error in filling ring buffer when sending message to Meridian Manager
0x4035	Error in filling ring buffer when sending message to Meridian Manager
0x4038	Error in retrieving characters from a ring buffer
0x4039	Error in retrieving characters from a ring buffer
0x403A	Error in retrieving characters from a ring buffer
0x403B	Error in retrieving characters from a ring buffer
0x403C	Error: Meridian Manager Send Queue task loop exited
0x403F	Malloc failed while constructing a DS30 message
0x4040	msgQSend failed after faultTimer timeout
0x4041	msgQSend failed after lampUpdateRequestTimer timeout

Table 12: Client task fatal errors

Error ID	Description
0x5001	Malloc failed during action creation
0x5002	Malloc failed during sending of card event state
0x5003	Malloc failed during retrieval of message from socket

Table 12: Client task fatal errors (continued)

Error ID	Description
0x5004	Malloc failed while extracting an IE string
0x5005	Malloc failed while extracting a Channel List IE
0x5006	Malloc failed while flushing a socket
0x5007	Malloc failed during sending of result fail message
0x5008	Malloc failed during handling of playAnnouncement message
0x5009	Malloc failed during handling of collectDigits message
0x500A	Malloc failed during sending of collectDigits result
0x500B	Malloc failed during handling of promptAndCollectDigits message
0x500C	Malloc failed during sending of promptAndCollectDigits result
0x500D	Malloc failed during sending of enableDigitNotification result
0x500E	Malloc failed during sending of clientRegistration result
0x500F	Malloc failed during forceRESET function

Nortel Networks Symposium Express Call Center

Voice Services Card Maintenance and Troubleshooting Guide

Nortel Networks
Mervue Business Park
Galway, Ireland

Product release:	4.2
Document release:	Standard 1.0
Date:	April 2003

NORTEL NETWORKS™